



8.1 DETERMINING CREEK TOP OF BANK

PHOTO: SYCAMORE CREEK

The following is a method for determining the top of bank of creeks for the purpose of interpreting creek protection policies and buffers included in the City of Santa Barbara Coastal Land Use Plan. Where a creek's top of bank is not established by other policies of the LUP, the creek's top of bank shall be determined on a case-by-case basis depending on the channel geometry. Two of the most common channel geometries are described below as Case 1 and 2. In some situations, Case 1 and/or Case 2 could occur along a section of creek channel or on opposing creek banks. In addition, there are channel geometries that may reflect a combination or variation of the cases outlined below that may require slight differences in the use of the guidance provided by the Cases below. A City Environmental Analyst, in consultation with City Creeks Division and Building and Safety Division staff, shall make a final determination of top of bank. Where the top of bank can reasonably be determined using more than one of the Cases below or a variation of the Cases below, the Environmental Analyst assigned to the project shall employ an approach to determining the top of bank that is most protective of creek resources.

The applicant may be required to submit a topographic survey prepared by a Licensed Land Surveyor of the project site (including cross sections showing both banks) that shows the Federal Emergency Management Agency (FEMA) 100-year flood surface elevations of the site, where available, to assist in the determination. In limited cases where FEMA has not determined flood elevations for a creek and the top of bank is disputed, a hydrologic study showing 100-year flood surface elevations may be needed and could potentially be used in place of "FEMA 100-year flood surface elevations" below.

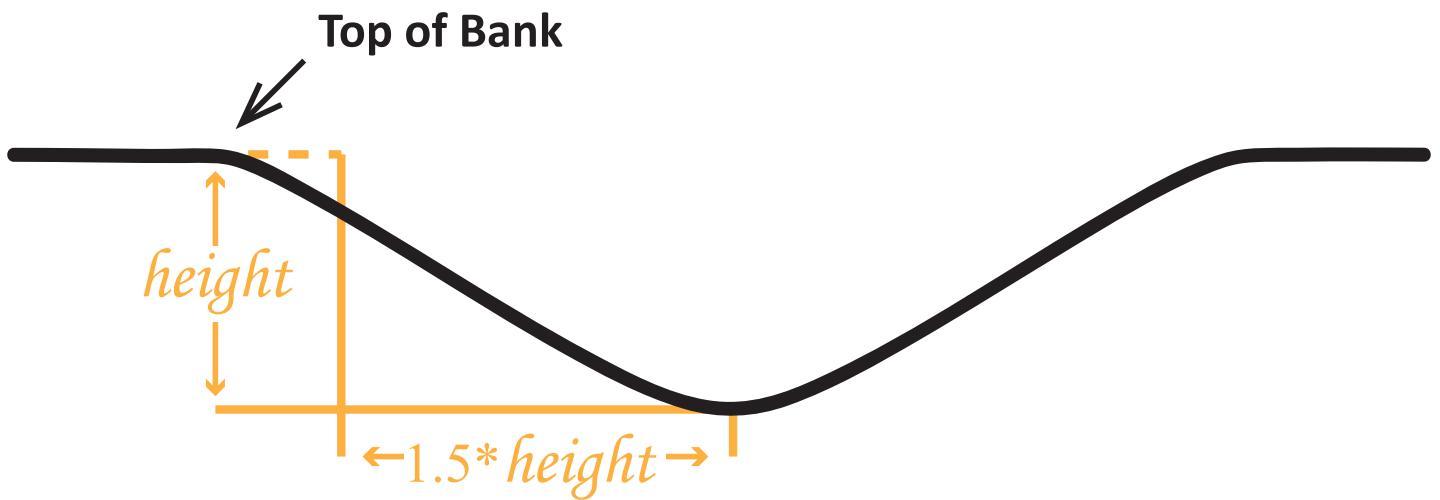
Case 1. *Bank Slopes with a Single Defined Hinge Point.* Case 1 occurs where the creek has a sloped bank rising from the toe of the bank to a hinge point at the generally level upper ground. The hinge point is the "top of bank." If the FEMA

100-year flood surface elevation is higher than the top of bank, the location of the top of bank does not change and is the hinge point. If the existing slope of the bank is steeper than 1.5 (horizontal):1 (vertical), the intersection of a projected plane with a 1.5:1 slope from the toe of bank to the generally level upper ground is the “top of bank.”

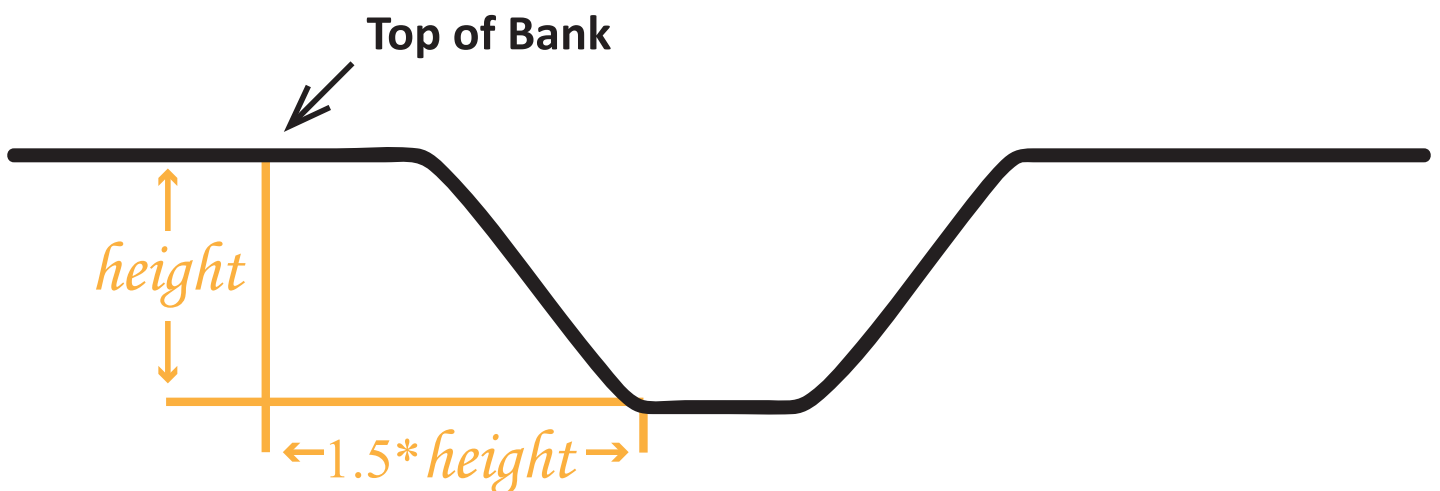
Case 2. *Bank Slopes with Multiple Hinge Points.* Case 2 occurs where the creek bank slope rises from the toe of the bank, levels off one or more times, then rises to a hinge point at the generally level upper ground. In this case, the hinge point at or directly above the FEMA 100-year flood surface elevation is the “top of bank.” If the FEMA 100-year flood surface elevation is above the highest hinge point, the location of the top of bank does not change and is the highest hinge point.

The portions of Mesa, Lighthouse, and Arroyo Honda Creeks that are above ground in the coastal zone are characterized by steep slopes that extend from the toe of the creek bank up a canyon that can be several hundred feet long. The top of bank for these portions of creeks is difficult to identify. For these reasons, minimum creek buffers in these areas are not based on a distance from the top of bank of the creek, but rather the top of the canyon as generally depicted on Figure 4.1-4 *Minimum Habitat Buffers for Mesa Creek, Lighthouse Creek, and Arroyo Honda* is used as the creek habitat buffer. Separate habitat buffers from riparian and other environmentally sensitive habitat areas (e.g. oak woodland) still also apply in these locations. See *Policy 4.1-13 ESHA, Wetland, and Creek Habitat Buffers* and *Chapter 4.1 Biological Resources* for more details.

Case 1: Bank Slopes with a Single Defined Hinge Point

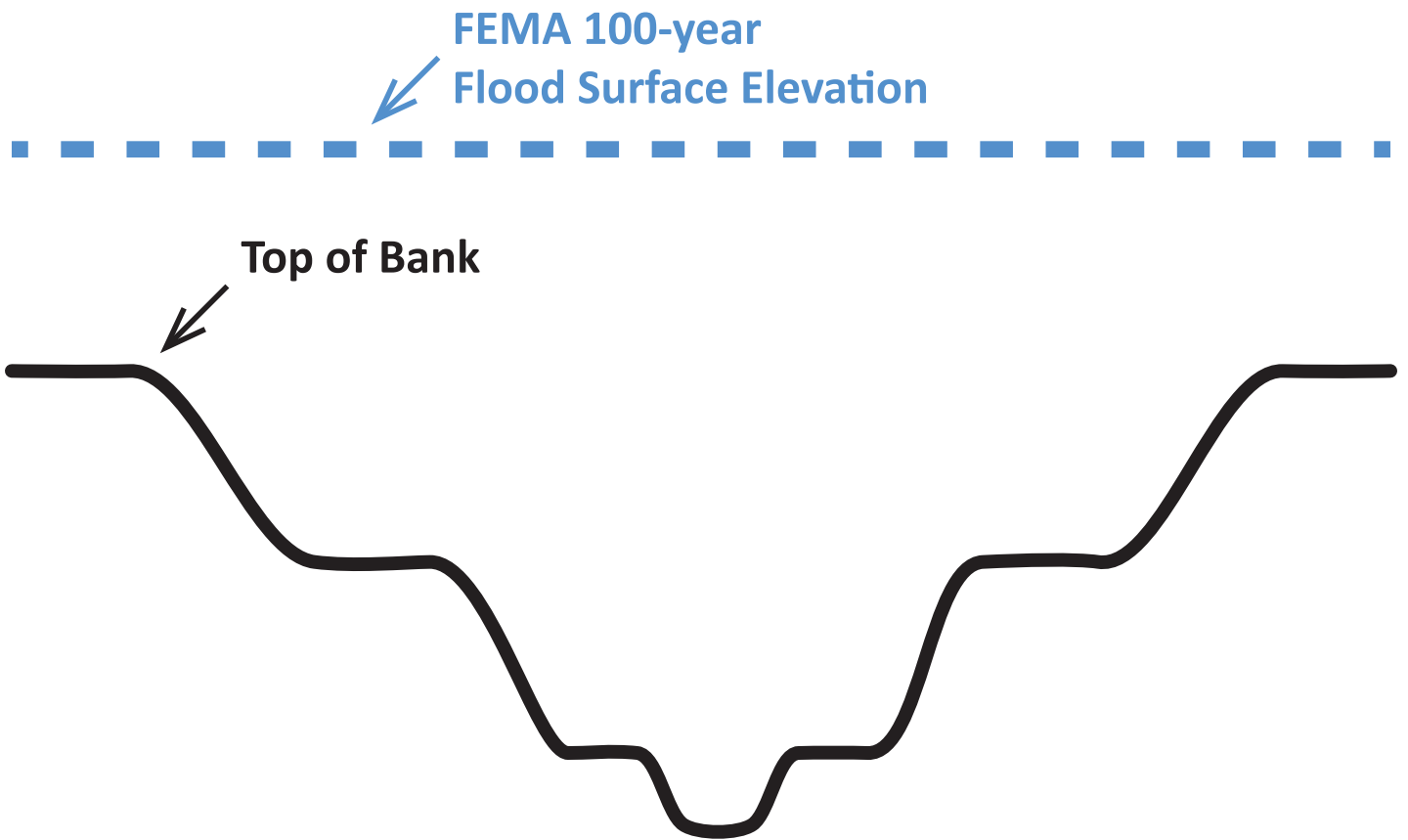
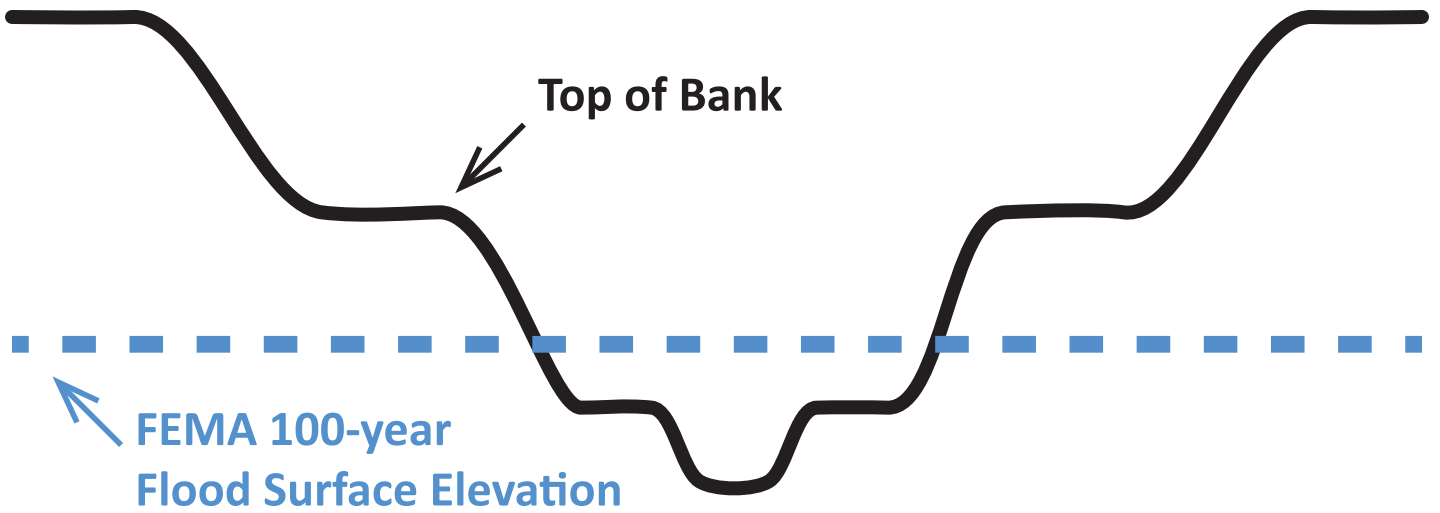


Case where existing slope of the bank is less steep than 1.5 (horizontal) : 1 (vertical)



Case where existing slope of the bank is steeper than 1.5 (horizontal) : 1 (vertical)

Case 2: Bank Slopes with Multiple Hinge Points



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